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HIGH - FSZ

Duration of Closures

Allowed);

O High - 0.

O Medium - 210,

Evaluation Criteria - Duration of all long term closure of lane(s) on mainline, ramps, cross streets, and other roads, as detailed on Form F

Edit	Facts			
	KGA: Based on Form F Part 2 (Full Closures), FSZ has committed to a maximum cummulative total of 2,730 days of full closures (61% of Allowable Closures) throughout the project including the following:			
	 Interchange Cross-Streets Full Closures: Total of 90 (30% of Allowed); High - 0, Medium - 90, Low - 0 			
	Ramps Full Closures: Total of 1,950 (64% of Allowed); High - 0, Medium - 540, Low - 1,410			
	 Non-interchange Cross-Streets Full Closures: Total of 690 (62% of 			

O Low - 480)

Based on Form F Part 1 (Partial Closures), FSZ has committed to a maximum

total of 45,345 days of partial closures throughout the project including the

- lowing:
- Mainline Partial Closures: Total of 37,800
 Interchange Cross-Streets Partial Closures: Total of 750;
 - O High 480.
 - O Medium 270,
 - O Low 0
- Ramps Partial Closures: Total of 3,195;
 - O High 1395,
 - O Medium 960,
 - O Low 840
- Non-interchange Cross-Streets Partial Closures: Total of 0;
 - O High 0,
 - O Medium 0,
 - O Low 0)
- Intersection Movements Partial Closures: Total of 3,600

Edit Significant Strengths

Consensus:

For long term full closures of cross streets along the corridor, FSZ is proposing the following:

- 1. Using 90 of the 300 (30%) allowable Interchange Cross Street (ICS) long term full closure days. No full closure will occur at 1 of the 6 ICSs (Provo Center Street), and Orem Center, Orem 800 N, and Orem 1600 N all experience only 10 days of long term full closure each.
- 2. Using 690 of the 1100 (62.2%) allowable Non-Interchange Cross Street (NICS) long term full closure days. Of all the NICSs between Provo and Orem, only Orem 400 N will experience a long term full closure (of 30 days). No full closures will occur on 9 of the 14 NICSs.

This reduced schedule of long term full closures of cross streets is aggressive, and will enhance the abilility of traveling public to move back and forth across I-15, especially in Orem where it is critical that motorists have the ability to reach the improvements on Geneva Road from the east side of I-15.

Minor Strengths

Consensus:

FSZ is using 1950 of the 3030 (64.4%) allowable Ramp Full closure days. No full closure will occur at 6 of 31 ramps, including no long term full ramp closures at Provo Center and reduced durations at Orem 1600 N and American Fork 500 East. There are also no closures at ramps with a "High" designation (based on traffic volume and user cost). This is an aggressive approach to maintaining ramp access that will have a positive impact on regional mobility.

FSZ will not partially close Provo Center Street. This is significant because Provo Center Street provides direct access to and from downtown Provo and the south end of Geneva Road.

FSZ does not partially close any Non-Interchange Cross Streets.

Minor Weaknesses

Significant Weaknesses

Consensus:

FSZ impacts the Sandhill Road intersection with University Parkway for approximately 16 months, restricting multiple movements at the intersection. This has a negative impact on drivers' ability to access UVU and business on the south side of University Parkway along Sandhill Road.

The partial closures that FSZ proposes for ramps impacts some high user cost facilities. For example, the NB off ramp to University Avenue will be partially closed for 2 years. Additionally, the SB off ramp to University Parkway will be partially closed for 13 months. Long partial closures may reduce capacity in a way that negatively impacts operations.

Regional Mobility

Evaluation Criteria – Quality of both AM and PM peak hour regional mobility based on long term closures or openings of mainline lanes, in each major MOT phase, over the life of the Project. Regional mobility is defined as the impact of construction activities on the following measures of effectiveness from the Paramics models:

- o Number of vehicles blocked from entering the model.
- o Travel times between select origins and destinations.
- o Confirmation that the Paramics models are representative of the scheduled major long term closures and openings of mainline lanes.

Significant Weaknesses

[From required regional mobility narrative]:

- Used Paramics AM and PM models to develop MOT scenarios (termed MPCs).
- Used MPCs to evaluate regional mobility based on long term closures and openings.
- 3. Modeled non-mainline closures within Paramics scenario.
- Number of blocked vehicles, in total and as percent, reported for each MPC.
- Conducted a modeling analysis of other indicators (e.g. VMT, VHT, average speed).
- Provided average travel time, by MPC for 12 representative trips in the corridor.
- Included new improvements (like Geneva Road) to provide additional capacity during construction.
- 8. Statistics for MPCs very similar to pre-construction conditions.

REB [MOT Paramics Review] edited by JKS

- 1. Included DDIs at AF Main (constructed?), AF 500, and University Parkway
- 2. Approved ATC allowed 2 nothbound lanes north of University Parkway
- 3. Added local permanent improvements to Geneva Road
- Blocked vehicles are consisent with the base models. All are within 4% of released vehicles.
- 5. Models match prospoed phasing plans & schedule of mainline openings and closures,
- 6. Segments with more than 1 minute increase in travel time compared to the base in the PM peak:
- o Orem Univ Pkwy to Provo Center Street on mainline sections in MPC3 and MPC4 due to construction of the Provo ramps,
- o Southbound mainline from Pleasant Grove Blvd to Orem 1600 N in MPC7 & MPC8
- 7. In the AM peak for MPCs 6, 7, & 8, the **southbound** journey times for the following ODs are greater than 5 minutes when compared to the base model:
- o Geneva Rd/University Pkwy to Salt Lake;
- o Cascade Golf/800N/800E/ Canyon Rd. to Salt Lake;
- o UVU to American Fork SR-74;
- o BYU to Salt Lake City; and
- o Orem City Ctr to Bangerter Hwy
- 8. In MPC5, at Provo Center interchange, the priorities at node 446 from the frontage road to NB on-ramp and Node 375 on-ramp node have been coded such that only left-turns are allowed in the MPC5 AM at both nodes. The lack of through movement on the entrance ramp (Node 375) forces northbound traffic to use the University Avenue interchange to get on to the I-15 mainline.
- 9. In MPC6, the northbound entrance ramp coding (node 375) is corrected, but the access road (node 446) is not.
- 10. Greather than 10 minute delays on **I-15 southbound** in Segment 6 for Phases MPC3-PM and MPC4-PM for the movement from BYU Provo to Spanish Fork SR-89. 11. 6-8 minute delays on **I-15 southbound** in Segment 3 and Segment 6 for Phases MPC7-PM and MPC-8PM for the movement from Bangerter Hwy to Sp Fork SR-6.
- 12. 5-7 delays on **I-15 southbound** in Segment 3 and Segment 6 for movement for MPC7-PM and MPC8-PM for movement from Bangater Hwy to Orem City Center.
- 9-10 minute delays on **I-15 southbound** in Segment 3 and Segment 6 for MPC7-PM and MPC8-PM for movements from American Fork SR-74 to UVU.
 Blocked trips of approximately 13,000 observed in one seed respectively for MPC 5 & 6.

Edit Significant Strengths

Consensus

The MOT models shows a very low number of blocked vehicles combined with a relatively low increase in travel time through the corridor. This indicates that the proposal has addressed impacts to regional mobility to a high degree of confidence.

Journey travel time summary (not total regional travel but selected O-D movements, ~3% of total movements) indicates additional 47,500 minutes of travel time during PM peak hour through project completion (October 2013) with reduction (5,900) in trip making due to congestion. This indicates that the PM peak was accommodated to an exceptional level. Conditions during the PM peak on the mainline while in construction are relatively equal to existing conditions. [Note: this data is based on mainline lane closures only, and does not account for closure of ramps and cross streets.]

Minor Strengths Minor Weaknesses

Consensus:

The utilization of Geneva Road as an adequate alternative route will require an adjustment period and public outreach to reach the full capacity this strategy could provide.

3rd party approval (FHWA) of the temporary construction access onramps at 200 South Lindon and on College Drive at University Parkway is not guaranteed. Failure to receive approval would negate the ATC that was approved to reduce the mainline lanes to 2 NB from 2000 S Orem to Lindon.

A phase (MPC 5) of the construction sequencing results in congestion for northbound AM I-15 between University Avenue and Provo Center Street. This is a result of the lack of parallel facilities in this area where the proposer is maintaining 2 lanes of traffic.

During phase 3 congestion is observed in the NB direction between US 6 and University Avenue during the AM peak period.

Minor Weaknesses Significant Weaknesses

15. Journey travel time summary (not total regional travel but selected O-D movements, ~3% of total movements) indicates additional 44,000 minutes of travel time during PM peak hour through project completion in December of 2014 (47,500 minutes through October of 2013, FSZ's end of construction). There is a 0.08% reduction in trips, or 4,500 trips, due to congestion through December 2014 (trip reduction is 5,900 through October of 2013).

MEDIUM - FSZ

Phasing Plan

Evaluation Criteria — Phasing plan logic and complexity

Edit Facts

Section 4 North of Geneva Road to Northern Construction Limits

- 2 phased construction
- phase 1 traffic will be shifted to the inside lanes
- phase 2 traffic will be shifted to the new constructed outside lanes
- 3 lanes in each direction in both phases
- Long Term closures of 200 S, and proctor lane 180 days each
- 500 E and the cross street at AF Interchange will be closed. 500 E will not be closed simultaneously with Lehi Main Street.
- Lehi Main Street interchange reconstruction will start. MOT is not shown in plans for this interchange
- Sam white lane bridge will be replaced in phase 2
- section 4 will be completed at the end of 2011

Section 3 South of University Parkway to North of Geneva Road

- 4 phased construction
- Phase 1, enhance the use of Geneva Road
- Widen Geneva Road to 5 lanes for University Parkway to 200 S Lindon
- Geneva Road improvements and construction of the temporary on ramp at 200
 South Lindon will preceed construction of mainline and interchanges through Orem.
- Provide a temp entrance ramp to NB I-15 at 200 S Lindon with UDOT approval
- Temp Ramp to NB I-15 on Ramp from Colledge Road
- Improve intersection and signals on Geneva Road at 200 S, 1600 N, 800 N, Center Street Orem, and University Parkway
- Provide a seven lane bridge structure across UTA and UPRR mainline tracks along Geneva Road
- Reconstruct University Parkway and complete WB portion of new vehicle tunnel
 Phase 1 enhancements will be completed before any \$15 mainline construction.
- \bullet Phase 1 enhancements will be completed before any I-15 mainline construction begins in this section
- Phase 2 will shift traffic to the SB lanes and construct NB lanes
- In phase 2 there will be 3 SB and 2 NB Lanes on I-15 this does not meet the RPF requirements in section 9C-3,1
- Phase 2 will be approximately 12 months
- University Parkway improvements will be constructed during phase 1 and 2
- Phase 2 traffic shifted to new pavement on University Parkway 3 lane EB and 2 WR
- \bullet Phase 3 shift traffic onto the new NB pavement on I-15. 3GP lanes in each direction
- Phase 4 800 N Ramps closed and 800 North one lane in each direction
- Phase 4 Orem Center street one lane in each direction and all on and off Ramps Closed
- Phase 4 1600 North NB Off and On Ramp Closed SB off Ramp Closed and 1600 North one lane in each direction
- Section 3 completed Winter 2013

Section 2 North of University Ave to South of University Parkway.

- · Simple 2 phased approach
- Phase 1 shift traffic to SB lanes. 2 GP lanes in each direction no shoulders.
 Meets the RFP
- Phase 2 shift traffic to NB new constructed lanes 2GP Lanes in each direction with 10 foot shoulders. Meets the RFP
- Reconstruction of Provo Center Street.

Edit Significant Strengths

Consensus:

FSZ will construct Geneva Road capacity improvements and the temporary on-ramp to NB I-15 at 200 South Lindon prior to initiating mainline and interchange construction activity in Orem. This will provide additional north/south capacity through Orem, which will be needed when capacity is restricted on mainline in the next phase. At that time traffic from Orem wishing to enter NB I-15 will be encouraged to utilize Geneva Road to access the temporary ramp at 200 S Lindon.

FSZ phases construction of the Interchange Cross Streets in Orem to minimize full closures. This is logical in that it facilitates the movement of traffic across I-15 to utilize the capacity improvements on Geneva Road.

The NB I-15 mainline lanes from south of University Parkway through the north end of the project, all improvements at the University Parkway interchange, and the improvements to Geneva Road and the temporary onramp at 200 South, will be complete prior to construction beginning at Orem Center, Orem 800 North, and Orem 1600 North. Conversely, Orem Center, Orem 800 North, and Orem 1600 North will all be open during construction at University Parkway. This phasing is logical and will maximize access to and from I-15, enhancing regional mobility.

Minor Strengths

Consensus:

FSZ will have NB mainline from Lindon through the north end of the project in its final configuration prior to initiating construction from University Parkway to north of Geneva Road. This will provide an outlet for NB traffic, and encourages the use of lower volume interchanges to the north during reconstruction in Orem.

The American Fork 500 East interchange will not be under construction simultaneously with the Lehi Main Street interchange (which would be allowed per the RFP). This approach lessens the impact at the American Fork Main Street interchange and ensures that two of the three interchanges in the Lehi/American Fork area will be open at any one time.

The pedestrian tunnel at the intersection of University Parkway and Sandhill Road will be completed early fall 2010. This removes pedestrians from the intersection for the remainder of construction at Sandhill Road (an additional 12 months), which enhances both operations and safety.

https://i15core.udot.utah.gov/sites/eval/MOT/Pages/FSZ-HMLMatrix.aspx

FSZ-HMLMatrix

- Phase 1 Maintain existing NB to EB off Ramp, SB to WB Off Ramp, WB to NB On Ramp to Provo Center Street.
- Close SB to EB fly over and divert traffic to SB to WB on ramp and provide a Temp signal at Center Street.
- Maintain NB off and SB on ramp at University Parkway
- · Phase 1B open on ramps at center street.
- Phase 2 East of Center Street interchange open Center Street to ultimate configuration
- Phase 2B Open Center Street Provo, Open SB off ramp.

Section 1 Rail Road Structure to North of University Ave

- 2 phase approach
- Phase 1 traffic shifted to SB Lanes. 2 GP lanes in each direction. This meets the
- Phase 2 traffic shifted to NB lanes. 2 GP lanes in each direction. This meets the
- 2700 North structure will be replaced in phase 1. 2700 S will be closed for tieins
- Maintain all Ramps and Cross Streets in this section
- 2700 North one lane each direction
- phase 2 Open 2700 North
- Phase 2 Maintain all ramps and cross streets lanes
- phase 2 Springville interchange SR-77, SB on ramps 3 lanes merge into 1. NB on ramp 2 lanes merge to 1
- phase 2 Springville SR75 NB on ramp 2 lanes merge into 1

Section 6 Southern Construction Limit (Main street us-6 interchange) to the rail road structure.

- 3 phased approach
- Phase 1 traffic will shift to NB. 2 GP lanes in each direction. This meets the RFP
- At the end of phase 1 US-6 on and off ramps will close for a short duration
- Phase 2 traffic will shift to SB lanes
- At the end of phase 2 the other SB ramp at SF Main Street and the NB US-6 on ramp will be closed
- Phase 3 starting in summer of 2012 Mainline will open with 4 lanes in each direction around US-6
- NB ramps at Spanish fork main street and the US-6 off ramp will be closed a temp NB off ramp will be built to minimize closure time
- The closure of NB off ram to US-6 will occur prior to Closure of the Main Street NB ramps

Approximately 50% of the mainline will be complete by the end of summer 2012

FSZ will complete mainline reconstruction north of Geneva Road prior to construction through Orem.

LOW - FSZ **Detour Plan**

Evaluation Criteria — Detour plan concept logic and complexity

Edit Facts

- 500 E AF detour o Duration 60 days
- o Could use AF Main as a detour as well
- o Detour is on state and local routes
- o Detour makes sense
- Proctor Lane detour
- o Duration 180 days
- o Detour is on state and local roads
- o Detour makes sense
- 200 S Lindon detour
- o Duration 180

Consensus:

Edit Significant Strengths Minor Strengths

All of the detour routes follow a logical path and in most cases are the shortest routes.

Minor Weaknesses

Significant Weaknesses

Using local roads for detour routes creates a 3rd party risk by requiring additional permitting outside of the project control. This will also limit the ability to directly coordinate and change signal systems.

Using two detour routes for the same closure of the NB and SB ramps at 1600 North will be confusing to the user. The user is looking for way finding detour signs and having two routes will place confusion on the route.

o Detour is on state and local roads o Detour makes sense • 1600 N detour o Ramps closed for 90 days o 1600 N closed for 10 days o No detour for 1600 North o Detour plan show using Geneva Road and State Street, 2 detour routes could be confusing o Detour makes sense • 800 North Orem o Ramps closed for 90 days o No detour for 800 north o Detour is on state routes o Detour makes sense • 400 North detour o Form F shows no closure time o No detour need if 400 north is not closed o Detour is on state and local roads Orem Center Street Ramp Detour o Ramps closed for 90 days o No detour for Center Street Form F shown 10 dosure o Detour is on state routes o Detour makes sense • Center Street Provo o NB off Ramp closed 30 days o Detour is on state route o Detour makes sense • 2700 North detour o Duration 30 days o Detour is on local roads o Detour makes sense • US-6 NB on ramp detour

No detour routes provided for 1600 N, 800 N, and Center Street Interchange Cross Streets, therefore it was impossible to evaluate the logic (long term full closures are noted on Form F).

TMP

o Duration 30 day o Detour is on local road o Detour makes sense

o Duration is 30 and 90 days

• US-6 SB off Ramp and US- 6SB on ramp

Evaluation Criteria - Completeness of Draft TMP in providing commitments and direction regarding:

- o Process to produce MOT Plans, including the following phases of a MOT plan: development (meeting contract requirements), implementation, monitoring, refinement, and maintenance
- o Strategies to maximize, monitor, and maintain regional mobility. o Strategies to maintain access to residences and local businesses.
- o Strategies to incorporate temporary and/or permanent ATMS facilities into traffic management during construction, including interface with TOC personnel and software.

Edit Facts Edit Significant Strengths Minor Strengths Minor Weaknesses Significant Weaknesses RJC: ______ ______ **Development** Consensus: Consensus: (see 3.2.4.1.1) 1. Iterative process between design/schedule/traffic analysis and MOT plans The process to produce and refine MOT plans FSZ will provide staff to work in the TOC (p. 3-83). This was not a requirement in 2. Meet RFP requirements incorporates UDOT and stakeholders throughout. the RFP. While undefined as to extent of coverage, this would help the communication process and create some additional ownership of arterial traffic **Implementation** FSZ proposes to implement temporary and new ATMS signal operations on the part of FSZ. (see 3.2.4.1.2) early, which will faciliate the gathering and dissemination 1. Obtain UDOT approval of traveler information. Implementing an incident response team would help prevent delays from minor 2. Coordinate signal timing with TOC and cities traffic incidents from becoming significant, which could easily happen during 3. Use of portable VMS for motorist guidance/advanced warning _______ construction conditions. 4. Qualifications of staff (see 3.2.4.2.6) FSZ will create an access plan for each business and residence impacted by Monitoring construction, which allows access to be maintained and supports PI effort. (see 3.2.4.1.3) 1. Establish an MOT Task Force for monitoring and fine-tuning of MOT Plans FSZ will establish an MOT Task Force and will use the task force to develop and 2. Monthly reports to UDOT continually refine the MOT plans.

- 3. MOT TF meets bi-weekly (see 3.2.4.3)
- 4. Quarterly review of TMP with UDOT (see 3.2.4.3)

Refinement and Maintenance

(see 3.2.4.1.4)

- 1. Communication with UDOT and stakeholders
- 2. Modify MOT plans to address observed problems
- 3. Use modeling to assess changes to MOT plans

Strategies to:

Maximize, monitor and maintain regional mobility (see 3.2.4.2.1)

- 1. Traffic signal timing
- a. Implement an MOT technical subcommittee for signal timing
- b. Develop a sample corridor timing plan
- c. Operational test
- d. Plans for construction, special events, incident management
- e. Monthly report
- 2. Driver information
- a. VMS and static signing
- b. Real time communication with TOC
- c. Work zone management systems (VMS, CCTV, variable Speed Limits)
- d. Active maintenance of construction schedule to account for changes
- 3. Incident response team (not defined)
- 4. CORE PI coordination

Maintain access to residences and businesses

(see 3.2.4.2.2)

- 1. Monitoring, coordination, and communication
- 2. ID potential issues and work with CORE PI
- 3. Business signage and temporary access
- 4. Monthly report
- 5. Action plan for each upcoming access issue

Incorporate ATMS into traffic management during construction (see 3.2.4.2.3)

- 1. Arterial management systems
- a. Traffic signal timing
- b. FSZ to provide staff at the TOC and in field
- c. Develop procedures and protocols for signal timing during construction
- 2. Early deployment of VMS & use of existing/temporary TMS for travel times
- 3. Deployment plan for portable VMSs
- 4. ATMS master plan for the project
- 5. Ramp metering during construction
- 6. Temporary ATMS communications plan
- 7. Intelligient work zone management system
- 8. Additional TMS and CCTV b/w existing and south of SR-75

DLM

- Development
- o Widen Geneva Road as an alternate to I-15
- o As design plans are developed the MOT plans are tailored to provide a safe work
- o Traffic analysis will be undertaken to support the development of the MOT plans
- o Use Paramics modeling to assess and mitigate impacts
- o Use Synchro to determine traffic signal timing improvements
- Implementation
- o Will Implement a comprehensive work zone traffic management system for the entire length of the corridor
- o FSZ will submit MOT plans for UDOT approval 2 weeks prior to changes in the traveled way
- o Approval Documents will include: Signal timing plans, a request for closure, a list of portable VMS, and HAR messages.
- o Coordinate with UDOT TOC and local agency for approval of signal timing changes. Notify the agencies prior to input of signal timing changes
- o VMS will be placed one week prior to implementation. 4 or more VMS will be deployed prior to major decision points

FSZ will create an ATMS master plan for the project and implement the plan.

FSZ will provide capacity and other improvements to Geneva Road that add to overall regional mobility off corridor.

FSZ will implement work zone management systems including message boards, cameras, variable speed limit signs, and construction awareness signs. All of these devices will communicate with the TOC, which will expand the ability of UDOT to manage traffic.

FSZ will use ramp metering to maintain traffic flow on mainline. FSZ will monitor and modify ramp metering where necessary throughout construction.

FSZ will implement additional traffic detectors between existing detection sensors and south of SR-75. This will enhance the reliability of travel times reported along I-15 north of University Parkway and will create a new ability to report those time south of University Parkway to US-6.

Quarterly reviews of the TMP with UDOT to verify that TMP strategies are working as intended

FSZ will develop a deployment plan for portable VMSs. This will help ensure effective messaging to drivers.

FSZ will coordinate with UDOT PI Team to ensure that road closures and other traffic information is included on the iTruck.utah.gov website.

- o FSZ will identify specific motorist guidance at key location along the detour route. Tail blazing signs will be in place before the first day of the closure or other construction activities
- o Implementing a work zone management system, including early warning devices approaching the work zone such as VMS, Cameras, and Variable speed limit signs and speed awareness signs. All of these signs will interconnect by cell phone to a central data center and adjust to real time conditions.
- Monitoring
- o Regular monitoring and feedback with UDOT and its stakeholders
- o Form a MOT Task Force at the onset of construction
- o Provide Monthly Reports
- o On the effectiveness of the plans
- Refinement and Maintenance
- o FSZ will continually refine the MOT plans. Specific changes will come through communications with UDOT and its stakeholders $\,$
- o Traffic Modeling will be used to assess the benefits and impacts of potential MOT plan changes
- Maximize, monitor, and maintain regional mobility
- Implement a working MOT technical subcommittee on signal timing and work with UDOT TOC to look for opportunities to test implement and apply this tool.
- o Develop a sample corridor construction signal timing plan
- o Produce adjusted signal timing plans
- o Brief UDOT on the corridor operational approach
- o After operational test is complete traffic signal timing plans will be generated for each major corridor.
- o Traffic Signal timing plans will include normal operations, incident management plans and special event plans
- o Each affected signal will be monitored regularly throughout construction
- o Focus will occur on long and short term closures
- o Driver information is another element of the TMP
- o Motorist guidance will be provide by VMS and trail blazing signs
- o The MOT team will work with UDOT PIO to ensure road closures and other traffic information is reported and forwarded to the group responsible for maintaining iTruck.utah.gov website.
- o Keeping an updated MOT Schedule
- Maintain access to residences and businesses
- o FSZ will take a proactive approach with each construction activity.
- o Work with UDOT PIO to mitigate potential access issues
- o Strategies will include business signage and temporary access
- o FSZ will monitor and report on access on a monthly basis
- Incorporate ATMS into traffic management during construction (including interfacing with TOC personnel and software)
- o Enhancements to UDOT existing traffic management technologies, with the implenttion of additional infrastructure in Utah County.
- o Implement ATMS early
- o Implement ATMS on a broad scale
- o FSZ will dedicate staff to monitor proable VMS
- o Supplement the existing HAR at the point of the mountain, University $\mbox{\sc Ave}$ and $\mbox{\sc Spanish}$ Fork.
- o Provide long term value with permanent ATMS improvements
- ☐ FSZ will develop a ATMS master plan for the project outlining needs, benefits and implementation staging.
- ☐ ATMS master plan will provide value during and after construction.
- o Ramp Metering
- $\hfill\square$ Once construction begins FSZ will monitor operation of ramps and will quickly identify problem areas
- o CCTV
- ☐ Temp communication swill have to reestablished through aerial fiber underground fiber high band width wireless.
- o Develop a comprehensive temp ATMS communication plan